

REMARKS

All the claims currently in this application, which had been previously indicated to be allowable, have been, upon reconsideration, rejected on substantive grounds. Applicants have amended their claims and respectfully submit that all the claims currently in this application are patentable over the rejection of record.

Two substantive ground of rejection are imposed in the outstanding Official Action. The first substantive ground of rejection, directed to Claims 1, 2, 17 and 18, is imposed under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Application Publication No. US 2004/0094641 A1 to Chen.

The Official Action avers that Chen discloses a process and apparatus for making crumb and powder rubber including all the steps presently set forth in independent Claims 1 and 17 as well as utilizing used vehicle tire particles as the used rubber particles, as set forth in Claims 2 and 18.

Applicants have amended independent process Claim 1 and independent apparatus Claim 17. As amended, these claims are clearly novel over the teaching of Chen.

As amended, independent process Claim 1 and independent apparatus Claim 17 include the requirement that the chilling processing step of Claim 1 and the chilling means component of the apparatus of Claim 17 include a cryogenic liquid spray and a cryogenic gas stream. Indeed, process Claim 1 also requires that cryogenic gas flow concurrently with the stream of the rubber particles. These process steps and apparatus limitation are not disclosed by Chen.

Chen utilizes a freezing unit 155 wherein a level of liquid nitrogen is maintained below the top of the freezer so that only a portion of the rubber particles in the freezer is

submerged in the liquid nitrogen. As such, the cooling of the rubber particles is effected by direct immersion into a liquid nitrogen pool. This is distinguished from the process requirement of contact with a spray of a cryogenic liquid or the apparatus requirement of providing a cooling means emitting a spray of a cryogenic liquid. Moreover, although the portion of the rubber above the liquid level is precooled by nitrogen gas that vaporizes from the liquid, the process and apparatus of the present application uses a far more efficient means of precooling wherein a stream of very cold gaseous nitrogen flows concurrently with the stream of rubber particles through the chilling means.

It is emphasized that the above remarks clearly establish the novelty of Claims 1, 2, 17 and 18 over Chen. However, these facts, in addition, emphasize the unobviousness of these claims over the Chen disclosure. Those skilled in the art are aware that the combined utilization of a cryogenic spray and a cryogenic vapor, recycled to flow concurrently with the rubber particles, results in more efficient utilization of the cryogenic liquid. Insofar as the cryogenic liquid represents a major variable cost in the practice of the process and apparatus of the present application, this distinction is representative of an unobvious advance in the art.

The second substantive ground of rejection is directed to Claims 5-16 and 20-45. Claims 5-16 and 20-45 stand rejected, under 35 U.S.C. §103(a), as being unpatentable over Chen.

The Official Action avers that the limitations of dependent Claims 5-16 and 20-45 are obvious design choices once the basic process and apparatus disclosed by Chen are known.

Although the above remarks make it apparent, even if the suggestion made in the Official Action were true, that the amendments to independent Claims 1 and 17 establish

that the apparatus and process of these claims include limitations not disclosed in the Chen apparatus and method. When this fact is added to the limitations set forth in Claims 5-16 and 20-45, it is apparent that these claims are not made obvious by Chen.

To illustrate the patentability of these dependent claims, applicants point to Claims 8 and 9, wherein process control of particle size distribution in the grinding step is effectuated by varying impact surface speed and by varying the space between the impact surface and the rebound surface. Similar apparatus limitations are provided in Claims 29-31, wherein the grinding means include a controlled speed impact surface and an outer inverted surface, and the impact surface is provided by a plurality of replaceable knives and an outer inverted cone surface having an interior surface in contact with the cooled granulated stream of rubber particles. These process and apparatus limitations are not so much as hinted at by Chen.

The particles are ground in the Chen process and apparatus by means of a mill provided with pairs of counter-rotating grinding rollers. Such a mill is far removed from a grinding means wherein rubber particles are impacted between a controlled speed impact surface and an outer inverted surface. Moreover, the controlled impact surface is neither provided with a plurality of replaceable knives nor a serrated surface inverted cone surface. It goes without saying that there can be no inverted cone surface moveable in a vertical direction insofar as the Chen impact mill does not so much as include an inverted cone surface.

Another distinction between the process and apparatus of the present application and that of Chen is the inclusion, in the process and apparatus of the present application, of an off-specification supersack feeding hopper for introduction of off-specification used rubber particles into a primary screening and fiber removal means. Such a feature of the process and apparatus of the present application is not found in Chen. As such, Claims

24 and 25 provide an apparatus which is not only novel over Chen but unobvious as well insofar as the process and apparatus of the present application provides greater flexibility associated with the capability to accept and process yet another type of supply of used rubber particles. The processing of such preprocessed off-specification used rubber particles in the Chen apparatus would require the inclusion of redundant and thus unnecessary processing steps, which need not be conducted on such input material.

The above distinctions, included in the dependant claims of the present application, are given to illustrate the patentable nature of these dependent claims, independent of their patentability based on the patentability of the independent claims from which these claims depend. That is, the recitation of the above remarks to only two major distinctions should not be interpreted as indicating that the specific limitations of the remaining dependent claims are not similarly patentable, without regard to the patentability created by their ultimate dependency of independent Claims 1 and 17, over the disclosure of Chen.

The above discussion establishes the patentability of all of the claims currently in this application over the substantive grounds of rejection imposed in the outstanding Official Action. Reconsideration and rescinding of these grounds of rejection is therefore deemed appropriate. Such action is respectfully urged.

It is noted that the claims have been amended to correct minor grammatical errors and to cancel claims made redundant by the amendments discussed above. It is emphasized that the amendments, required to correct minor grammatical errors, create no file wrapper estoppel.

The above amendment and remarks establish the patentable nature of all the claims currently in this application. Notice of Allowance and passage to issue of these claims, Claims 1, 2, 5-18 and 20-45, is therefore respectfully solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Marvin Bressler", with a long horizontal flourish extending to the right.

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